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ABSTRACT

A study of language learning in Arctic Quebec examines relationships between early Inuktitut competence and later learning of English as a second language, general and local characteristics of native language competence, and early Inuktitut instruction and later competence. It also looks at the reliability of native educators' assessment of language competence and the identification of features of Inuktitut competence for use in improving native language instruction. Participants in both phases of the study numbered approximately 90 Inuit children. As students in grades 3 and 4 they provided Inuktitut writing samples that were compared with English samples written a year later. Each group of samples was organized by knowledgeable raters into "strong," "average," and "weak" categories. In general, it was found that: (1) the native language situation in the region is not homogeneous, with settlement groups varying in both proficiency and style of Inuktitut; (2) a nonlinear relationship exists between fluency and complexity in judgments of Inuktitut competence, and apparently in Inuktitut development; and (3) a strong correlation exists between early Inuktitut proficiency and later English proficiency, both individually and within settlements. However, facts and policy resulting from such research should be tempered with consideration for the community's linguistic and social values. (MSE)

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EVALUATING THE ROLE OF FIRST LANGUAGE IN NATIVE EDUCATION: DEVELOPMENTAL RESULTS IN A CANADIAN INUIT SETTING

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McGill University Faculty of Education and Kativik School Board, Arctic Québec

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CONTEXT

By numerous indicators, at least into the early 1980's, the Inuktitut of Arctic Québec has maintained an exceptional viability relative to the Inuktitut of Labrador and western Canada, and to the languages of most other indigenous North American populations (Foster, 1984; Price, 1981). Arctic Québec Inuit comprise by far the largest Inuktitut dialect group in Canada, and this population is increasing at over twice the rate of southern North America (Dorais, 1985; Normandeau, 1981). Inuktitut is still the first language of more than 96% of Québec Inuit, higher than any other Inuit or Amerindian group, with Inuktitut remaining the primary language of community life and of family communication between generations (Burnaby, 1984). First language literacy, considered critical to the survival and expanding use of indigenous languages (Bauman,1981), is also exceptionally high among Québec Inuit relative to other indigenous populations at close to 100%. Despite recent expansion of southern media, linguistic and overall culture contact pressures are still more moderate for Arctic Québec Inuit than for the majority of native North Americans. The James Bay and Northern Quebec Agreement of 1975 has provided Arctic Québec Inuit with a degree of economic and political control over their own affairs well beyond that of most native populations, including the power of directing and setting linguistic policy within their own school system. The presence of two second languages in Québec, and the competition between them, tempers the domination of either English or French and provides a further opening for the continued use of Inuktitut in many domains including formal education.

Even this constellation of high viability factors, however, offers Québec Inuit only a marginal advantage over other Amerindian groups against the threats of language and culture loss. Such threats and effective reaction to them are variously perceived by various segments of the Arctic Québec population. Divergent views concerning the path to cultural

survival focus sharply on the role of the schools in Inuit society, and particularly on language policy within the schools as reflective of survival strategy. At one extreme are those who emphasize economic survival and see the schools' primary responsibility as providing skills for competition on the terms of mainstream southern society. This group favours essentially second-language education at all levels, claiming that Arctic Québec Inuit culture outside the schools is sufficiently intact not to be threatened by mainstream Canadian education, and that Inuktitut is sufficiently strong not to require formal instruction. At the other extreme are those who emphasize ideational survival: cultural maintenance based in Inuit values, thought, and social models. This group favours full first-language education at primary levels, with continuing and expanding use of Inuktitut at higher levels, pointing to the rapid language loss experienced in other apparently sound native language situations (major loss in as little as one generation in parts of the western Arctic and nearly Labrador). This ideational group and many between the two extreme views claim that effective second-culture learning for Québec Inuit, given their still viable first-language social context, rests on a strong base of Inuk identity and the language which represents it (see Bullivant, 1984 concerning economic versus ideational survival).

Given a lack of solid information relevant to this debate, and the evident high priority of the language policy issue in Inuit education, Kativik School Board initiated an evaluation research project concerning the language learning of primary students in its schools. A first phase focussed on Inuktitut since so little was known about how children were learning their first language in school. A second phase related English to earlier Inuktitut learning. The findings reported below are but first clues to the dynamics of first and second language learning among Québec Inuit students. The reader is cautioned that only a few indicators of language competence could be practically included in this study, and that language competence itself is but one indicator of educational effects for either individual children or for Québec Inuit culture generally.

PURPOSE

Overall, the evaluation research addresses the following questions concerning language learning in Arctic Québec.

1. Is there a relationship between early Inuktitut competence and later second language (English) competence for individual Inuit students, for particular communities, or for the entire Arctic Québec region? This is the initial language policy question which stimulated the study.

2. What characterizes competent Inuktitut usage among Inuit students, and do these characteristics indicate local variations in the usage and maintenance of the language?

3. How significant is the quality and time of early Inuktitut instruction, relative to community or other unidentified factors, to the Inuktitut competence of Inuit students?

4. Can Inuktitut competence be reliably assessed globally by experienced native educators, and how do these assessments relate to analytical linguistic measures of language usage?

5. Are there features of Inuktitut competence which can be identified and applied to the refinement of Inuktitut teaching in schools of the Arctic Québec communities?

In light of the very limited knowledge regarding both the individual learning and the linguistic evolution of Inuktitut, or of any indigenous language, more precise research questions are as much a goal as initial steps towards answers. Since time in this session is very limited, results reported here relate primarily to the first two questions. Findings to date pertaining to all the evaluation research questions are being prepared for publication.

PARTICIPANTS

For this first step in the systematic investigation of language learning among Arctic Québec Inuit students, the political and practical choice was made to study a few limited language-learning indicators with participants from across the region. More intensive language and developmental study, only possible with smaller local samples, was anticipated as a subsequent step to be based on this initial region-wide data.

Children in Grades 3 and 4 during 1984-1985 were selected as the study cohort since these were the oldest children to have experienced, in varying degree according to community, Kativik-developed Inuktitut programs in their beginning school years. Any child over 2 years older than the norm for his/her grade level, or with English or French as a first language, was excluded from the study. The total cohort of approximately 180 children from 10 communities (see Table 1) participated in the Inuktitut phase of the study. This number was reduced by half for the English phase of the study in 1985-1986 due to numbers of children enrolled in French second-language and to varying KESL (Kativik English Second Language) placements. (For most children, Grade 3 corresponds to KESL 1, Grade 4 to KESL 2, and so on. Changes in language policy in certain settlements have lead to some exceptions.)

Due to local circumstances (e.g., school fires, lack of personnel) data from a few communities are incomplete as is inevitable in a field situation uncontrolled by the researchers.

PROCEDURES AND MATERIALS

For numerous reasons, Inuktitut writing samples were chosen as the first type of language data to be collected from the study cohort. Literacy is highly identified with schooling and, particularly in the case of indigenous languages, is also considered to have a critical role both in language learning of individual children and in overall longterm viability of the language (Stairs, 1985). Given the limited personnel available (only one Inuk and one qallunaq researcher), study of writing samples from a large number of children was also a practical choice in comparison to the time demands of work with oral language samples. Data gathering procedures for both Inuktitut and English phases of the study were necessarily constrained by ongoing service demands particular to programs in both languages.

For the Inuktitut writing samples, an 8-page story book was prepared, each page with a picture and a blank lined space for writing. During 1984-1985, Inuktitut teachers of the Grade 3-4 children were informed about the study and given specific instructions for gathering the writing samples. Using a series of large coloured pictures corresponding to those in the booklet, teachers discussed the story in class preceding writing. Children did their writing in the booklet without further help or instruction.

One year later (1985-1986) many of these same children, now in Grades 4 and 5, were given the KESL English tests which included a writing section based on a single situational picture. The KESL tests were familiar to teachers and students from use of a similar battery in the previous year.

For each Inuktitut writing sample, counts were made of the number of expressions (sentences), the average number of clusters (words) per expression, of chunks (morphemes) per cluster, and of affixes per root. Clusters/expression corresponds roughly to mean-length-of-utterance measures widely used in assessing children's language production in English (Miller, 1981), although the polysynthetic nature of Inuktitut requires simultaneous consideration of chunks/cluster counts. Similarly, chunks/cluster and affixes/root correspond roughly to word-morpheme and type-token counts used in assessing English language development and deficiency (e.g., Tyack & Gottsleben, 1977), although again the structure of Inuktitut alters the significance of

these two indices. In the view of an Inuktitut linguist (Dorais, 1986, personal communication[1]) these word constuction indices probably have a greater relationship to language level in Inuktitut than they do in English, and are more critical to language complexity than number of clusters per expression. Correlational analysis indicated a close relationship between number of expressions and clusters per expression, considered as measures of fluency, and between chunks per cluster and affixes per root, considered indicators of complexity. Cross-correlations between members of these two pairs of indices were much lower (nonsignificant).

Inuktitut writing samples were independently and blindly rated by four experienced Inuit teachers into "strong", "average", and "weak" categories. A similar 3-category rating procedure was carried out with English writing samples by four English teachers and consultants experienced in English-second-language with Arctic Québec Inuit students.

RESULTS AND CONCLUSIONS

Developmental indicators in Inuktitut: Age and proficiency stages.

Significant variations among settlements were seen in all four indices (expressions, $F = 5.12$, $p<.00001$; clusters/expression, $F = 5.12$, $p<.00001$; chunks/cluster, $F = 8.60$, $p<.00001$; affixes/root, $F = 8.66$, $p<.00001$; two significant Scheffe paired comparisons in each case). Tables 2 and 3 present length-complexity indices in conjunction with proficiency ratings; Table 2 in raw score form and Table 3 in standard deviation scores to allow for comparisons across indices and ratings. Inspection of the length-complexity data for the Grade 3-4 study cohort reveals clear differences between the linguistic indices emphasized in high rating and those emphasized in low rating. Writing with very short words (chunks/cluster and affixes/root) was rated low (Kuujjaraapik and Kangirsualujuak). Writing with longer words was rated somewhat higher, but only up to average level unless fluency (expressions, clusters/expression) was also high. Even very complex word structure (Salluit and particularly Kangirsuk) did not receive very high rating in absence of high fluency. Highest rating (Quartaq) was related to high fluency indices as long as complexity was at least in the average range. Above average fluency alone did not yield high ratings if word complexity was low (e.g., Kuujjuaq).

These observations suggest two stages in written Inuktitut proficiency:
a) a base level of word complexity for average rating, and
b) additional levels of fluency for higher rating.

It is noteworthy that among the four length-complexity indices used, only one of the fluency measures, clusters/expression, showed a significant difference between Grade 3 and Grade 4 subjects: Grade 3 averaged 5 clusters and Grade 4 averaged 6 clusters per expression ($F = 12.83$, $p<.00001$). This apparent developmental progress in expression length over the study cohort age range may be related to the importance of fluency in raters' judgements of highest level writing. Developmental significance of expression length is supported by pilot study with oral Inuktitut samples from primary school students where clusters/expression accounted for the largest proportion of variance in the sample ratings ($R^2 = .74$, 54% rating variance; Crago & Annahatak, 1985).

Inuktitut writing features and expressive style: Four major patterns.

Inuktitut writing did not only differ in proficiency level from settlement to settlement, but also differed in expressive style. Four patterns of Inuktitut usage emerged from combining quantitative analysis of length-complexity indices and qualitative analysis of the Inuk researcher's language-feature checklist. Among the four patterns, as described below and illustrated in Appendix A, there is linguistic evidence that
a) patterns 1 and 2 show Inuktitut which is not very 'healthy'; Inuktitut which is weakening, or changing into English expressive patterns, and
b) patterns 3 and 4 show 'healthy' Inuktitut in two different ways: pattern 3 showing older style Inuktitut and pattern 4 showing an evolving Inuktitut which is staying viable through its changes (Lowe, 1986, personal communication[2]).

Pattern 1. This pattern was seen mainly in the writing of students from the settlement with least early Inuktitut teaching time and earliest introduction of second language (Kuujjuaq). Quantitatively, fluency was average or above, but cluster construction was very limited. Writing here was considered more second-language assimilated in its features than elsewhere. Perhaps most significant to the future of Inuktitut in this community was a conceptual as well as a technical characteristic seen in the written Inuktitut. A listing of isolated descriptive statements, rather than presentation of a global situation, characterized the writing. Despite this particularly critical linguistic and cognitive situation, some hope for Inuktitut recovery and maintenance was offered by English language results: students' English was not at a substantially higher proficiency level than seen in other settlements, indicating a choice for second language assimilation had not yet been made.

Pattern 2. This pattern was common in the two lowest-rated settlements where Grade 3 and 4 data are available, particularly in the settlement showing overall low fluency as well as limited complexity of clusters (Kangirsualujuak). Despite the weaknesses in vocabulary and grammar noted in the examples (Appendix A), this pattern still often showed a relatively global Inuit style of expression rather than isolated items. A similar pattern of writing was seen in some of the lowest-rated writing from other settlements.

Pattern 3. This pattern is typical of the two settlements significantly high in cluster complexity in the Grade 3-4 writing samples (chunks/cluster and affixes/root), most particularly the settlement showing a unique pattern of few exceptionally long clusters per expression (Kangirsuk). Highly rated writing samples from several other settlements, notably Kangirsujuak, also showed this pattern. Expressions were very comprehensive and flowing in style to Inuit readers. Imaginative characterization in the writing was common and was identified by the Inuk researcher as representative of older Inuit story-telling style. A Inuktitut linguist advises careful attention to this traditional expressive pattern in the near future as it may be subject to rapid changes, either negatively in the direction of Pattern 2 or positively in the direction of Pattern 4 below (Lowe, 1986, personal communication[2]).

Pattern 4. This writing pattern was seen in stories from the highest-rated settlement (Quartaq) and some of the writing from the second-rated settlement (Kangirsujuak, especially at Grade 3 level). Expressions were long and linked together, although individual clusters were less complex than in Pattern 3. Characterization and content were developed and vocabulary was rich. While the writing was well-integrated and stories were comprehensive, the style was less global and flowing than older Inuktitut. The pattern was taken by linguistic consultants and Inuit readers to represent a fluent modernized Inuktitut perhaps crucial to continued viability of the language, with possible parallels to the linguistic evolution of Greenlandic.

Further analysis of these patterns with individual students in each category is proposed, using the technologies of discourse analysis and applied linguistics in conjunction with feature identification by native speakers.

Developmental indicators in Inuktitut-English bilingualism.

English speaking and writing scores were significantly intercorrelated at the Grade 4 level ($r = .62$, $p<.0001$) but not at the Grade 5 level. This suggests that English speaking and English writing become two separate skills after 2 years

in second language.

At the Grade 4 level (KESL 2), English speaking scores were significantly correlated with length of Inuktitut writing samples (number of expressions, $r = .40$, $p<.006$). At the Grade 5 level (KESL 3), English writing (but not speaking) scores were significantly correlated with length of Inuktitut writing samples (number of expressions, $r = .34$, $p<.040$) and also with complexity of Inuktitut word structure (chunks/cluster, $r = 37$, $p<.026$). This suggests that early Inuktitut writing proficiency, fluency in particular, is first related to proficiency in spoken English. Subsequently, after 2 years in second language, correlation is seen between written English and early writing proficiency in Inuktitut, with complexity as well as fluency in Inuktitut being significant. This finding is consistent with other situations, including the most substantial native study available (Rosier & Holm, 1980), which show a lag in first-to-second language effects. Review of relevant language learning evaluations suggests waiting until the end of elementary school at least before judging the effectivenes of early first language education (Cummins, 1983).

Where bilingual data are available, communities with higher averages in Grade 3-4 Inuktitut writing also showed higher averages one year later in English writing and total KESL scores. The two communities lowest in Inuktitut writing were also lowest in English writing, speaking, and total KESL scores. These community results indicate that the relationship between Inuktitut and English proficiencies is not based solely on the intelligence or general language aptitude of individual students. It is improbable that communities vary in levels of student intelligence or aptitude, but rather vary in levels of first and then second language learning -- due either to quality-of-teaching or to other settlement factors.

When all English-second-language students in the school system are considered, including students up to the secondary level, communities higher overall in English writing and KESL totals were also higher in Inuktitut writing at Grade 3-4 levels. These community differences further support a language-learning rather than an intelligence-aptitude explanation for the relationship between Inuktitut and English proficiencies, and further strengthen the hypothesis that older students' success in English is related to early success in Inuktitut.

Although these findings do not provide a causal link between early Inuktitut competence and later English competence, they do confirm that for present Québec Inuit primary students proficiencies in both languages are closely tied, i.e., that there is not a choice to be made between success in Inuktitut

and success in second language. Students with high proficiency in Inuktitut are the same ones with later high proficiency in English.

This conclusion counters that of earlier studies, in Québec and elswhere, pointing to 'subtractive' bilingualism in Inuit students who are learning both languages. In these studies both level of usage and richness of vocabulary and grammatical structures were found diminished in Inuit students with high second-language proficiency (Robitaille, 1984; St. Aubin, 1980). The present study suggests the hopeful possibility that this situation is changing with such educational changes as a more systematic early Inuktitut school curriculum, more Inuktitut materials for children, trained Inuit teachers, and overall a more Inuit-based school system.

The possibility of education-related change in Inuit bilingualism is supported by a recent study of students in the eastern Arctic including Quebec (Dorais & Collis, 1986). Students up to Grade 4 level had a greater available vocabulary in Inuktitut than they did in English, and a high level of syntactical accuracy in speaking and writing Inuktitut. Students above the Grade 4 level had a more dominant English vocabulary, but were low in both English (or French) functional proficiency and in Inuktitut technical accuracy. The researchers interpret this proficiency difference in terms of age and exposure to second-language schooling, i.e., with more second language education, students lose both their competence and motivation in Inuktitut. Since the data are cross-sectional rather than longitudinal, an historical interpretation may be even more plausible. The Quebec students up to Grade 4 level had experienced well-developed Inuktitut programs in their early school years, including Inuktitut literacy preceding second-language literacy. Students in higher grade levels did not have this early Inuktitut educational experience.

In verifying the hypothesis of language learning change related to educational change, it will be important to follow the study cohort, and younger students, into higher grade levels to observe whether a) they fall into the subtractive bilingualism pattern seen in the past, or b) they maintain the pattern of strong Inuktitut linked to strong English as seen so far in the present study. The continuing development of Inuktitut programs at higher grade levels will certainly be relevant to the outcome and should be carefully documented in any further study.

SUMMARY

Three major language learning results for Inuit students in Arctic Québec have been reported here:

1. The native language situation in the region is not homogeneous, but rather settlement groups vary in both proficiency and style of Inuktitut.

2. There is a nonlinear pattern of relationships between fluency and complexity in judgements of Inuktitut competency, and apparently in Inuktitut development.

3. A strong tie between early Inuktitut proficiency and later English proficiency, particularly literacy, is supported on both an individual and settlement basis.

A FINAL WORD ON RESEARCH AND POLICY

The initial stimulus for this study was a request for "facts" about language policy consequences. Facts provided by even the most complete research program should not be confused with answers concerning language policy or any community issue. Facts from research or other sources must be absorbed into the value system of the community; only through that value system can facts be connected with answers to problems or decisions for action. Value judgments surrounding results of the present study include the significance of Inuktitut to the successful development of Inuit children; the importance of Inuktitut survival in either traditional or modernized forms; the desirability of extending Inuktitut usage to higher educational, work, and bureaucratic levels; the ideational (culture base) or economic (competition base) goal of Inuit schooling; and the appropriate means of strengthening Inuktitut, improving Inuit education, or furthering any other community goals involving study findings. Any future research steps will need to be closely tied to such local value judgments concerning language and education.

REFERENCES NOTES

1. Louis-Jacques Dorais, Département de l'Anthropologie, Université Laval, Québec. Louis-Jacques has published extensively concerning Inuktitut, including a dictionary of new vocabulary since the 1960s and a new grammar currently in preparation for Inuit themselves.

2. Ronald Lowe, Département de la Linguistique, Université Laval, Québec. Ronald recently worked with the Committee for Original Peoples' Entitlement to prepare dictionaries for the three disappearing Inuit dialects in the western Canadian Arctic (Inuvialuktun).

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Settlement	N	%
Salluit	41	22.3
Kuujjuaq	28	15.2
Kangirsualujuaq	22	12.0
Akulivik	18	9.8
Kangirsujuaq	16	8.7
Kuujjuaraapik	16	8.7
Kangirsuk	14	7.6
Inukjuak*	12	6.5
Quartaq	10	5.4
Aupaluk**	7	3.8
Total	184	

Table 1. Grade 3-4 study cohort by settlement.

* Grade 3 only.
** Grade 4 and older students only.

Settlement	Average Inuktitut Rating	Number Expressions ('sentences')	Clusters/ Expression ('words per sentence')	Chunks/ Cluster ('length of words')	Affixes/ Root
[Aupaluk*	2.32	19.0	7.3	5.9	1.48]
Quartaq	2.27	19.0	7.0	5.2	1.54
Kangirsujuaq	1.77	14.4	5.7	4.9	1.52
Kangirsuk	1.73	9.6	4.3	6.0	2.03
Salluit	1.62	11.8	5.5	5.7	1.69
Akulivik	1.56	11.5	5.3	4.9	1.44
Kuujjuaq	1.51	13.0	5.9	4.4	1.24
Kangirsualujuaq	1.37	9.1	5.1	4.4	1.39
Kuujjuaraapik	1.23	10.5	5.5	4.2	1.17

Table 2. Grade 3-4 cohort (1984-1985): Average Inuktitut rating and length-complexity indices by settlement (raw scores).

* Aupaluk numbers were very small compared to other settlements, and included only older students.

Settlement	Average Inuktitut Rating	Number Expressions ('sentences')	Clusters/ Expression ('words per sentence')	Chunks/ Cluster ('length of words')	Affixes/ Root
[Aupaluk*	+ 1.16	+ 1.06	+ 1.16	+ .75	- .05]
Quartaq	+ 1.08	+ 1.17	+ .97	+ .17	+ .09
Kangirsujuaq	+ .23	+ .32	+ .07	- .09	+ .05
Kangirsuk	+ .18	- .43	- .90	+ .88	+ 1.26
Salluit	.00	- .08	- .03	+ .59	+ .45
Akulivik	- .10	- .13	- .21	- .09	- .14
Kuujjuaq	- .20	+ .11	+ .22	- .52	- .61
Kangirsualujuaq	- .43	- .51	- .31	- .54	- .26
Kuujjuaraapik	- .65	- .29	- .06	- .74	- .79

Table 3. Grade 3-4 cohort (1984-85): Average Inuktitut rating and length-complexity indices by settlement (standard scores based on mean and standard deviation of all subjects).

Note: Scheffe paired comparisons significant $p<.00001$ indicated by underlined valves.

Solid lines and dashed lines indicate separate comparisons.

Tail direction indicates high (____, ----,) or low (____\ ----\ ) side of the given comparison.

* Aupaluk numbers were very small compared to other settlements, and included only older students.

Appendix A
prepared by
Betsy Annahatak

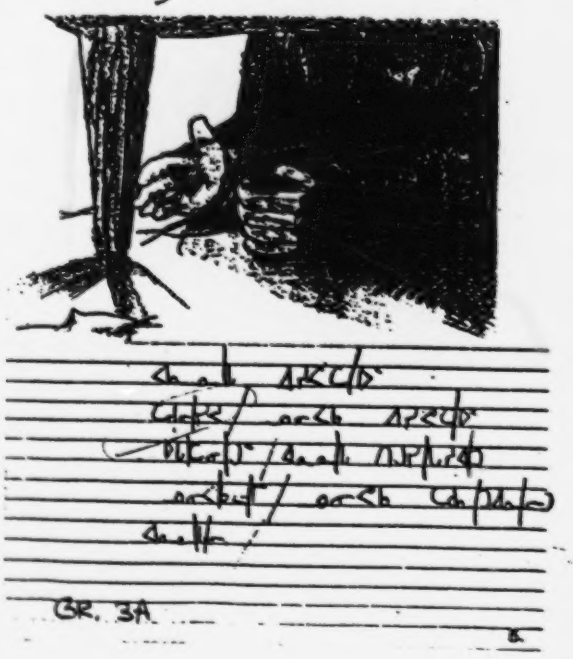
Pattern # 1

- very short sentences with no links between them

- They don't have a global thinking but rather they seem to have porcellarized thoughts.

- limited vocabulary
- mistakes in endings
- short expressions (no more than 3 clusters)
- short clusters
- some show low level of imagination

Gr. 3A



GR. 3A

Pattern # 2

- limited vocabulary
- mistakes in endings
- short clusters
- short stories
- sometimes low level of imagination

Eva's mother is trying to take a mouse that's under a chair.

At the chair under it trying to find the mouse

This mouse is under the sofa, when she saw she is trying to take it.

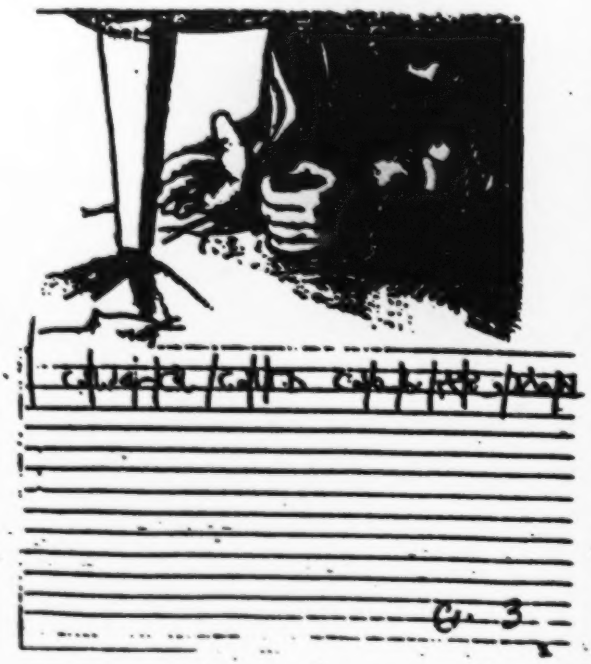
The chair I take because I saw.

- this pattern might still be weak but they still have a global thinking.

Pattern #3

- long clusters (several affixes per root word.)
- more comprehensive sentences
- short expressions
- some have mistakes in endings
- some have high level of imagination

The little mouse while I am trying to take it. it was just staring.



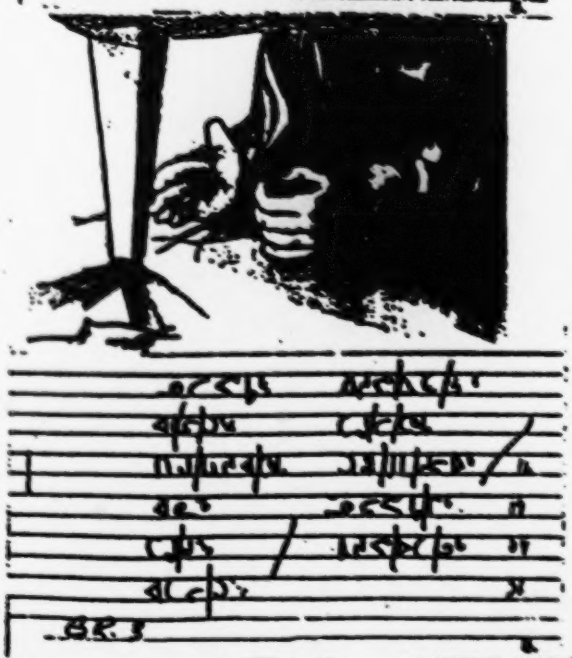
She trys to see it, When she saw it, because it was just staring.

Pattern # 4

- there is more sequencing of events on one page than in other patterns. and they're link
- more affixes are known
- high level of imagination most of the time
- long expressions
- average clusters (several affixes per root word)

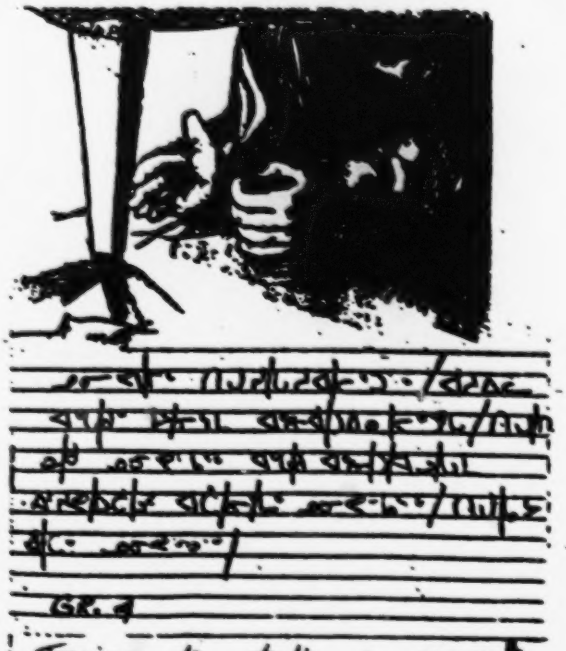
This woman is trying to take a mouse that's under a sofa trying to kill it because she wants the have things because she likes sewing.

GR. 3



The mouse is under a sofa she is looking at it trying to take it in order to kill it. The woman saw a mouse under a sofa.

GR. 3



Trying to take a mouse then because I had burnt my hands I just got hurt. I didn't take the mouse because I am in pain with my hands and its under the sofa, I can't take it, the mouse.

GR. 4